Example #3: A 60.0 kg lab cart is moving at 5.00 m/s, and is accelerated to 12.0 m/s. How much work was done to cause this?

$$W = \Delta E_k = \frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2$$

$$= \frac{1}{2}(60)\left[12^2 - 5^2\right]$$

$$\boxed{W = 3.6 \times 10^3 \text{ J}}$$